WHAT IS CLAIMED IS:

1. A radio transmission method for a radio network having a plurality of communication stations, comprising the steps of:

selecting one of said plurality of communication stations as a control station to control transmission between the communication stations in the radio network; and

defining a transmission frame format having a defined frame period and consisting of a management information transmission region and an information transmission region; wherein said management information transmission region consists of a fixed length down-link management section and a station synchronous section; said station synchronous section for identifying each communication station in the radio network and having a variable length corresponding to the number of communication stations in the radio network.

- 2. The radio transmission method according to claim 1, wherein said information transmission region consists of a first information transmission region for transmitting information isochronously and a second information transmission region for transmitting other information asynchronously.
- 3. The radio transmission method according to claim 2, wherein said first information transmission region has a fixed length and precedes said second information transmission region in said information transmission region.
- 4. The radio transmission method according to claim 3, wherein said first information transmission region follows said down-link management transmission region and said second information transmission region precedes said station synchronous transmission section.
- 5. The radio transmission method according to claim 2, wherein said first information transmission region has a fixed length and follows said second information transmission region in said information transmission region.

- 6. The radio transmission method according to claim 2, wherein the length of said second information transmission region is set to a minimum length that is limited by the number of communication stations in the radio network.
- 7. The radio transmission method according to claim 6, wherein said first information transmission region follows said second information transmission region in said information transmission region.
- 8. The radio transmission method according to claim 1, wherein information identifying a new communication station in the radio network is added to the station synchronous section.
- 9. A radio transmission method for a control station of a radio network having a plurality of communication stations, comprising the steps of:

defining a transmission frame format having a defined frame period and consisting of a management information transmission region and an information transmission region; and

setting a station synchronous section in the management information transmission region for identifying each communication station in the radio network, wherein the station synchronous section has a variable length corresponding to the number of communication stations in the radio network.

- 10. The radio transmission method according to claim 9, wherein said information transmission region consists of a first information transmission region for transmitting information isochronously and a second information transmission region for transmitting other information asynchronously.
- 11. The radio transmission method according to claim 10, wherein said first information transmission region has a fixed length and precedes said second information transmission region in said information transmission region.

- 12. The radio transmission method according to claim 11, wherein said first information transmission region follows said down-link management transmission region and said second information transmission region precedes said station synchronous transmission section.
- 13. The radio transmission method according to claim 10, wherein said first information transmission region has a fixed length and follows said second information transmission region in said information transmission region.
- 14. The radio transmission method according to claim 10, wherein the length of said second information transmission region is set to a minimum length that is limited by the number of communication stations in the radio network.
- 15. The radio transmission method according to claim 14, wherein said first information transmission region follows said second information transmission region in said information transmission region.
- 16. The radio transmission method according to claim 9, wherein information identifying a new communication station in the radio network is added to the station synchronous section.
- 17. A control station for controlling a radio network having a plurality of communication stations, comprising:

a controller for defining a transmission frame format having a defined frame period and consisting of a management information transmission region and an information transmission region; wherein said management information transmission region consists of a fixed length down-link management section and a station synchronous section; said station synchronous section for identifying each communication station in the radio network and having a variable length corresponding to the number of communication stations in the radio network; and

a radio transmitter for sending and receiving signals having the defined transmission frame format.

- 18. The control station according to claim 17, wherein said information transmission region consists of a first information transmission region for transmitting information isochronously and a second information transmission region for transmitting other information asynchronously.
- 19. The control station according to claim 18, wherein said first information transmission region has a fixed length and precedes said second information transmission region in said information transmission region.
- 20. The control station according to claim 19, wherein said first information transmission region follows said down-link management transmission region and said second information transmission region precedes said station synchronous transmission section.
- 21. The control station according to claim 18, wherein said first information transmission region has a fixed length and follows said second information transmission region in said information transmission region.
- 22. The control station according to claim 18, wherein the length of said second information transmission region is set to a minimum length that is limited by the number of communication stations in the radio network.
- 23. The control station according to claim 22, wherein said first information transmission region follows said second information transmission region in said information transmission region.
- 24. The control station according to claim 17, wherein information identifying a new communication station in the radio network is added to the station synchronous section.

25. A radio transmission network for radio transmission between a control station and a plurality of communication stations, comprising:

said control station for controlling said radio transmission network, comprising:

a first controller for defining a transmission frame format having a defined frame period and consisting of a management information transmission region and an information transmission region; wherein said management information transmission region consists of a fixed length down-link management section and a station synchronous section; said station synchronous section for identifying each communication station in the radio network and having a variable length corresponding to the number of communication stations in the radio network; and

a first radio transmitter for sending and receiving signals having the defined transmission frame format; and

at least one communication station controlled by said control station, comprising:

a second radio transmitter for sending and receiving signals having the defined transmission frame format; and

a second controller for transmitting a station synchronous signal identifying the communication station and included at a designated position in said station synchronous section.

- 26. The radio transmission network according to claim 25, wherein said information transmission region consists of a first information transmission region for transmitting information isochronously and a second information transmission region for transmitting other information asynchronously.
- 27. The radio transmission network according to claim 26, wherein said first information transmission region has a fixed length and precedes said second information transmission region in said information transmission region.
- 28. The radio transmission network according to claim 27, wherein said first information transmission region follows said down-link management transmission region and

DS0420

said second information transmission region precedes said station synchronous transmission section.

- 29. The radio transmission network according to claim 26, wherein said first information transmission region has a fixed length and follows said second information transmission region in said information transmission region.
- 30. The radio transmission network according to claim 26, wherein the length of said second information transmission region is set to a minimum length that is limited by the number of communication stations in the radio network.
- 31. The radio transmission network according to claim 30, wherein said first information transmission region follows said second information transmission region in said information transmission region.
- 32. The radio transmission network according to claim 25, wherein information identifying a new communication station in the radio network is added to the station synchronous section.